

**ZERO BACKFLOW VENT SYSTEM FOR LIQUID HELIUM COOLED MAGNETS**

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**ABSTRACT OF THE INVENTION**

The zero-backflow vent assembly (100) of the present invention prevents backflow into the magnet cryogen vessel (12) and therefore eliminates magnet icing. In general, the present invention employs a spring loaded valve in the magnet vent  
10 turret (38) to prevent the influx of air after a magnet quench event. The magnet vent turret (38) is the interface between the liquid helium vessel (12) in the magnet and the atmosphere (40). A vent stack is employed to channel any cryogenic exhaust gas out of the room, normally to the outside atmosphere (40).